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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,031	01/12/2005	Robert H Murphy	20020001-US	6558
42716	7590	02/05/2008		
Vern Maine & Associates P. O. BOX 3445 NASHUA, NH 03061			EXAMINER NGUYEN, LUONG TRUNG	
			ART UNIT 2622	PAPER NUMBER
			MAIL DATE 02/05/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,031	Applicant(s) MURPHY ET AL.	
	Examiner LUONG T. NGUYEN	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>07/21/05</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claims 16-18 are objected to because of the following informalities:

Claim 16 (line 2), "a detector array" should be changed to --the detector array--.

Claims 17-18 are objected as being dependent on claim 16.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bakhle et al. (US 6,061,092) in view of Medina US 5,081,530).

Regarding claim 1, Bakhle et al. discloses an imaging system comprising:

a focal plane array (CMOS sensor image array 18, figures 1A-1B, column 1, line 50 – column 2, line 13) having a plurality of pixels;

a lens (included in digital camera 10, figures 1A-1B) adapted to focus radiation from a scene in front of the lens onto the FPA behind the lens;

a shutter (shutter 12, figures 1A-1B, column 1, line 50 – column 2, line 13), the shutter having a closed state that produces a spatially uniform reference image signal and allows internal

radiant flux of the system to reach detectors of the FPA, and an open state that allows an open state image signal that includes external scene radiation and internal radiant flux from the system to reach detectors of the FPA;

a signal processing module (dark image subtraction unit 22, figures 1A-1B, column 1, line 50 – column 2, line 13) operatively coupled to the FPA, and adapted to correct the open state image signal based on the spatially uniform reference image signal.

Bakhle et al. fails to specifically disclose the shutter is located in front of the lens. However, Medina teaches a camera in which the shutter 24 is located in front of lens 25 and could be placed behind the lens (figure 2, column 3, lines 62-67). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Bakhle et al. by the teaching of Medina in order to focus the radiation light from a scene onto the CMOS sensor image array. It is a design choice to dispose the shutter in front of the lens or behind the lens.

Regarding claim 2, Bakhle et al. discloses a shutter controller (solenoid 14, figures 1A-1B) operatively coupled to the shutter, and adapted to command the shutter to its opened and closed states.

Regarding claim 3, Bakhle et al. discloses a system controller communicatively coupled to the shutter controller and the signal processing module, and adapted to control operation of the imaging system (a system controller is included in digital camera 10 to control operation of

digital camera 10, figures 1A-1B).

Regarding claim 4, Bakhle et al. discloses the system controller is communicatively coupled to a network thereby enabling the imaging system to communicate with other systems also communicatively coupled to the network (Bakhle et al. discloses video camera is coupled to a personal computer through a bus interface, column 2, lines 15-28).

Regarding claim 5, Medina discloses a temperature controller (light source 21, figure 2, column 3, lines 62-67) adapted for illuminating the scene with radiation, thereby allowing reflected radiation to be received by the system.

Regarding claim 6, Medina discloses wherein the temperature controller includes a laser (laser 21, figure 2, column 3, line 54) for illuminating the scene.

Regarding claim 8, Bakhle et al. discloses wherein for any one session of imaging system operation, each of a plurality of open state image signals are corrected based on the closed state image signal (column 1, line 50 – column 2, line 28).

Regarding claim 9, Bakhle et al. discloses wherein the closed state image signal is periodically generated to account for changes in the imaging system (column 7, lines 19-28).

Regarding claim 10, claim 10 is a method claim of apparatus claim; therefore, see examiner's comment regarding claim 1.

Regarding claim 11, Bakhle et al. discloses wherein correcting the open state image signal includes compensating for pixel-to-pixel non-uniformities of a detector array included in the imaging system (column 1, line 50 – column 2, line 13).

Regarding claim 12, Bakhle et al. discloses wherein correcting the open state image signal includes compensating for offsets between the opened and closed states of the lens (column 1, line 50 – column 2, line 13).

Regarding claim 13, Bakhle et al. discloses wherein correcting the open state image signal includes compensating for pixel-to-pixel non-uniformities and offsets between the opened and closed states of the lens (column 1, line 50 – column 2, line 13).

Regarding claim 14, Bakhle et al. discloses wherein the external scene radiation includes IR radiation and the imaging system includes an IR sensitive FPA for generating the closed and open state image signals (column 1, lines 49—58).

Regarding claims 15-16, all the limitation of claims 15-16 are included in claim 1; therefore, see examiner's comment regarding claim 1.

Regarding claim 17, see examiner's comment regarding claim 2.

Regarding claim 18, see examiner's comment regarding claim 3.

Regarding claim 19, see examiner's comment regarding claim 6.

4. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bakhle et al. (US 6,061,092) in view of Medina US 5,081,530) further in view of Sato (US 6,181,484)

Regarding claims 7 and 20, Bakhle et al. and Medina fail to specifically disclose wherein the shutter has a lens side surface that is located within five millimeters of the front of the lens. However, Sato teaches the shutter 2 is disposed at a position which is distanced from the imaging-side surface of the lens L2 by 1.97 mm toward the image side (column 4, lines 48-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Bakhle et al. and Medina by the teaching of Sato in order to provide a compact camera.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Thomas et al. (US 6,525,769) discloses method and apparatus to compensate for dark current in an imaging device.

Yoshida (US 6,992,712) discloses imaging apparatus.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN
01/21/08



**LUONG T. NGUYEN
PATENT EXAMINER**